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Robot boosts hip surgery success

Researchers say that a surgical robot developed by UK scientists makes hip operations so simple that even students can get good results.

Normally, operations using chrome alloy to resurface the ball of the hip joint are notoriously difficult and require years of experience to perfect.

But untrained students using the robot for "virtual" operations have been able to achieve high levels of accuracy.

Trials of the new technology are under way at four British hospitals.

Up to 5,000 hip resurfacing operations are done each year.

Learning curve

Normally, inexperienced surgeons face a steep learning curve when learning to carry out these operations, the researchers said.

And if hip bones are repaired incorrectly, wear and tear occurs, requiring patients to undergo further painful and expensive corrective operations.

To prove how easy the new technology was to use, the researchers studied 32 medical students doing operations on a model of a hip joint.

In a similar way to GPS navigation systems, the technology senses the movement of the surgical tools and compares it to detailed images of the bones. It thus allows surgeons to see a "real-time" virtual model of the progress of the operation.

Developed by PhD students at Imperial College London, the robot then plots where surgical incisions should be made and calculates the correct angles for inserting chrome alloy parts needed to repair the hip bone.



“ This could significantly improve a patient's health and wellbeing and ensure they do not have to undergo repeat operations ”

Professor Justin Cobb

Students were able to carry out the procedure three times more accurately compared to when they used conventional methods to manually navigate the joint.

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Clinical trials of the device, called the Wayfinder, are currently being carried out at Warwick Hospital, Bath Hospital, Truro Hospital and the London Clinic.

Expert levels

Surgeons can practise the operation "virtually" before carrying out the real thing.

Professor Justin Cobb, head of the Biosurgery and Surgical Technology Group at Imperial College London, told delegates at the British Society for Computer Aided Orthopaedic Surgery Conference in Glasgow that the device rapidly turned untrained surgeons into experts.

"The reason for using students in the study was to show that even students, with the right technology, can achieve expert levels straight away.

"More importantly, we've also demonstrated that no patient has to be on an inexperienced surgeon's learning curve.

"This could significantly improve a patient's health and wellbeing and ensure they do not have to undergo repeat operations."

Stephen Cannon, president of the British Orthopaedic Association, said hip operations were among the most difficult areas in orthopaedic surgery. He said the tool showed promise for use in training and in the operating theatre.

"Further research will be required to fully establish value to patients. The technology will need to be cost-effective if it is to be taken up by the NHS."

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